

difference existed between the temperature of the isothermal layer as measured on January 2 and 3.

Generally speaking, many improvements of the methods and instruments are doubtless still required, but it must be remembered that the work in England was commenced less than a year ago, and perfection can hardly be expected within so short a time.

J. E. PETAVEL.

HOME AND FOREIGN BIRD-LIFE.¹

THE authors of these three excellent little works are evidently enthusiastic bird-lovers and accomplished and patient observers. In the case of the first two, at any rate, their highest enjoyment appears, indeed, to consist in sitting for hours watching the movements and ways of their feathered favourites. Moreover, either they or their friends are well accomplished in the use of the camera, and they have thereby been enabled to make permanent records of many of the fascinating sights that have come under their observation for the benefit of those who have neither their patience nor their opportunities.

Mr. Gordon's favourite species appear to be the golden eagle and the ptarmigan, the photographs of both of which are claimed to be nearly, if not indeed completely, unique. To obtain the picture of the golden eagle's eyrie the author underwent considerable difficulty not unmingled with danger, while peril of another type was experienced when a fog suddenly descended as he was wandering among snow-clad precipices in search of ptarmigan. The photographs have therefore more than their apparent face-value, which is of itself considerable. Where all are interesting it is difficult to make a selection, although personally we have been much interested in the series of photographs of a young golden eagle at various stages of growth, one of which is here reproduced.

Mr. Charles Barrett, in "From Range to Sea," covers comparatively new ground, and has attempted to accomplish for some of the birds of Australia what has already been done for those of our own islands. It must be confessed, however, that the illustrations in his booklet (whether from the fault of the photographs themselves, of the reproductions, or of the printer we cannot say) are by no means up to the level of those in some books of English bird-life. In the tiny and exquisitely built nests of such species as the rufous and the white-shafted fantail, with the parent-bird in attendance, the author has subjects quite different from any met with in this country, and in portraying these novelties he appears to have availed himself to the full of his opportunities. The nest of the lyre-bird forms, perhaps, a still more striking subject, which was the scene of an altogether

unexpected incident. "On inserting my hand in the nest," writes the author, "a piercing cry, like the whistle of a steam-engine, rang down the gully. It was difficult to realise that the half-fledged lyre-bird which I could feel inside the nest was the cause of this unearthly clamour."

The present booklet is an excellent beginning in Australian bird-photography, and we shall look in the future for more work in the same style from the author and his artist, Mr. Mattingley.

The book standing third on our list is of a somewhat different type from either of the two already noticed, presenting in some degree an approximation to a popular history of South African birds generally. It may serve, in fact, as a kind of popular representative of the volumes on birds in the "Fauna of South Africa," and should be of the greatest value to a large number of persons who for one reason or another are unable to refer to the latter. Indeed, by means of the numerous excellent photographs with which it is illustrated, this volume will enable the sportsman and amateur naturalist in South Africa to



FIG. 1.—Golden Eagle six weeks old. The bird fell from the original eyrie and is here shown in one made by parent birds at the foot of the cliff. From "Birds of the Loch and Mountain."

determine without any great difficulty a very considerable proportion of the birds with which he may be brought in contact. The illustrations (of which a sample is reproduced) are for the most part excellent, while the text contains a sufficient amount of anecdote and local colouring to redeem it from the charge of dullness.

Personally we have found special interest in the author's account of the eggs and parasitic habits of the honey-guides and cuckoos. Honey-guides, it appears, actually storm the breeding-holes of the species upon which they are parasitic, as was witnessed by the author in the case of a pair of barbets, which offered a fierce resistance to the intruder. As regards cuckoos, it is absolutely certain that in South Africa these birds must generally lay their eggs on the ground and transport them in their beaks to the foreign nests, which they are too large to enter. All the African cuckoos normally lay coloured eggs, but when they lay in nests of species with white eggs, their own eggs are also often white. In the case of the golden cuckoo the author states that "a pure white egg was taken from the oviduct of a female

¹ "Birds of the Loch and Mountain." By Seton P. Gordon. Pp. xvi + 181; illustrated. (London: Cassell and Co., Ltd., 1907.) Price 7s. 6d. net.

"From Range to Sea; a Bird-lover's Ways." By C. Barrett. Pp. 62; illustrated. (Melbourne: T. C. Lothian, 1907.) Price 1s.

"Sketches of South African Bird-life." By A. Haagner and R. H. Ivy. Pp. xiv + 181; illustrated. (London: R. H. Porter, 1902.) Price 20s. net.

shot at the Crocodile River; a white egg was also found in the nest of a Cape wagtail, which was allowed to hatch to make identity certain; further, we took a white egg from the nest of the little red-vented tit-babbler. . . . The usual host is the Cape sparrow, both of us having taken the cuckoo's eggs—coloured like those of the sparrow—from the nests of this bird." Unfortunately, there is no information as to whether there are "white-egged" and "coloured-egged" strains of cuckoos in Africa, or

so far as possible have grouped together the exhibits referring to related subjects.

The British Contribution to the International Investigation of the Upper Air, 1907-8: The investigation of the upper air under the auspices of the "Commission internationale d'Aérostation scientifique" is now fully organised. This country has taken part in the work unofficially since 1902, and officially since 1904. The investigation as carried on in this country is three-fold. The first part consists in measurements of temperature, humidity, and wind velocity at different levels up to about 10,000 feet, by meteorographs raised by kites. For the second part, automatic traces of the relation between pressure (height) and temperature are obtained by means of meteorographs borne by unmanned balloons (*ballons-sondes*). The balloons are arranged to reach heights up to 22 kilometres in about two hours, and then to burst and descend. The finder is invited to return the instruments and claim a reward. For the third part, the bearing and elevation of small pilot balloons are observed at measured intervals of time by one or two theodolites, and the motion of air currents at different levels is computed from the observations. The exhibits were by Dr. W. N. Shaw, F.R.S., Mr. J. E. Petavel, F.R.S., and Mr. W. A. Harwood, Mr. C. J. P. Cave, Captain C. H. Ley, Mr. Eric S. Bruce, and the Director-General of the Survey Department, Egypt; they illustrated the methods referred to and the results obtained by British investigators.

The Astronomer Royal: (1) Photograph on which the new eighth satellite of Jupiter was discovered by Mr. P. Melotte, showing also the sixth and seventh satellites, and photograph of the ninth satellite of Saturn (Phoebe); (2) diagrams of positions of Jupiter's and Saturn's distant satellites, from photographs taken at the Royal Observatory, Greenwich, with the 30-inch reflector; (3) drawings of the solar corona at the eclipses of 1898, 1900, 1901, and 1905, made by Mr. W. H. Wesley from the original negatives; (4) eclipse of 1901, May 18, from photographs taken in Mauritius, and eclipse of 1905, August 30, from photographs taken at Sfax, Tunisia.—*Solar Physics Observatory, South Kensington:* (1) Enlarged photographs of stellar spectra; (2) spectrum of a sun-spot; (3) spectro-heliograph disc photographs, taken in "K" light; (4) photographs of prominences, taken in "K" light; (5) photograph of Aberdeenshire stone circle with Cornish circle for comparison.—*Mr. J. Franklin-Adams:* (1) Machine for counting stars upon the 15 inch by 15 inch plates of the Franklin-Adams chart. As the number of stars upon this chart is estimated at 23,000,000, only special areas—selected by Prof. Kapteyn, of Groningen—will in the first instance be counted. This machine, by Troughton and Simms, is designed to work with such accuracy that regions adjacent to the selected areas may afterwards be added without omissions or overlappings. (2) Machine for drawing precession lines upon the plates of the Franklin-Adams chart. This machine has been designed to draw to a hundredth of a millimetre, if necessary, precession lines giving star places at epochs 1855, 1875, 1900, and 1925, both in Right Ascension and Declination.

Mr. J. S. Wilson and Mr. W. Gore: India-rubber models and apparatus used for the investigation of the distribution of stress in dams (Fig. 1). The model, which rests on the top of the trestle, consists of a slab of india-rubber cut to represent the section of a masonry dam, together with its foundation and substratum. The water pressure against the dam is reproduced by plates pulled against the upstream face of the model by cords passing over pulleys and attached to weights. The correct ratio between the density of the fluid represented by that pressure and the density of the masonry (1:2.25) is maintained by suspending a large number of weights from pins passing through the model at uniformly distributed points. To obtain strains large enough to measure, both densities are magnified forty times. Photographs are taken of the model and the system of lines ruled on it, one when unstrained



FIG. 2.—Black-shouldered Kite. From "Sketches of South African Bird-life."

whether the same bird may lay white or coloured eggs according to circumstances.

The book is a welcome addition to South African ornithological literature.

THE ROYAL SOCIETY'S CONVERSAZIONE.

THE first of the two conversazioni given annually by the Royal Society was held at Burlington House on Wednesday of last week, May 13. The guests were received by Lord Rayleigh, president of the society, and included leading representatives of many branches of intellectual activity. There were a large number of exhibits, illustrating methods and results of recent scientific work, and in the course of the evening demonstrations were given in the meeting room by Mr. C. V. Boys, F.R.S., on the dynamics of the game of diabolò, Mr. Francis Fox, on the operations involved in the saving of Winchester Cathedral and other ancient buildings, and Mr. C. Gordon Hewitt, on the natural history of the house-fly. Following our usual practice, we give a summary, with a few additions, of the descriptive catalogue of exhibits, and